

## CLAIMS

1. A plasma display device comprising:  
a plurality of discharge cells, which show a single color or multiple colors,  
5 being arranged; and  
phosphor layers corresponding to the discharge cells being disposed and  
excited by ultraviolet rays for emitting light,  
wherein a composition formula of at least one phosphor layer of the  
phosphor layers is  $\text{Ba}_{(1-x-y)} \text{Sr}_y \text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$ , and the phosphor layer is formed  
10 of a phosphor which has been heat-treated in an oxidizing atmosphere.

2. The plasma display device of claim 1,  
wherein a heat-treatment temperature in the oxidizing atmosphere is  
not less than 600 °C and not more than 1000 °C.

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3. The plasma display device of claim 1,  
wherein in the composition formula of  $\text{Ba}_{(1-x-y)} \text{Sr}_y \text{MgAl}_{10}\text{O}_{17}:\text{Eu}_x$ , "x"  
ranges  $0.01 \leq x \leq 0.20$ , and "y" ranges  $0 \leq y \leq 0.30$ .

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4. A method of preparing a phosphor, whose emission center is formed by  
adding at least one of Eu and Mn as an activator and whose host crystal is a  
composite oxide including at least one element of Ba, Ca, Sr and Mg,

the method comprising:

a reducing atmosphere process for firing a mixed material of the  
25 phosphor at least one time in a reducing atmosphere; and

an oxidizing atmosphere process for heat-treating in an oxidizing  
atmosphere after the reducing atmosphere process.

5. The method of preparing a phosphor of claim 4,

wherein a heat-treatment temperature in the oxidizing atmosphere process is not less than 600 °C and not more than 1000 °C.

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6. The method of preparing a phosphor of claim 4,

wherein a composition formula of the phosphor is  $\text{Ba}_{(1-x-y)} \text{Sr}_y \text{MgAl}_{10}\text{O}_{17} \cdot \text{Eu}_x$  (where  $0.01 \leq x \leq 0.20$ ,  $0 \leq y \leq 0.30$ ).

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